# 2016 BRIDGE INSPECTION REPORT

**COMMISSION NUMBER: 15014** 

ROUTE 58 BUSINESS (RIVER STREET)
OVER
FALL CREEK

**STRUCTURE NUMBER: 1901** 







Agen	cy ID:	1081901-000000000020204		Date	of Inspec	tion:	01/2	0/2016		
				Due	: JANUA	\DV	Inspectio	n Frequen	cy: 24	Months
	County/City:	CITY OF DANVILLE	F		Intersecte		CREEK	ii i iequeii	Cy. 24	MOHUIS
	Main Route:	58 BUSINESS			ility Carrie		R STREET	Ē		
	d Inspector:	J. B. HANSEN			Locatio			FAX RD; 0	.32 BRYA	NT AVE.
	-									
		_								
	Signature of									
L	ead Inspect	or								
Si	gnature & Da	ate								
	of City/Towr									
	Reviewer									
							PF	Stamp of	Reviewer	
							· -	- Otop O.		
SPEC	CIAL REQUI	REMENTS Fracture Cri	tical 🗌		Fatigue	Prone Det	ails 🛚		Pin & H	anger 🗌
										• –
	CONDIT	TION RATINGS		LD PO			TRAFFIC	SAFETY		
		Deck: 6		n Legib		N			e Railings:	
	Superst			n Visib		<b>\</b>			ransitions:	
Cha	Substi Innel/Channe		apacity			١		Approach ach Guard		
Cria		511 101 1	apacity	OIGH IX					uran Enus.	
	(	Culvert: N	Sin			N.				
	(	Culvert: N		gle (To	ns): N	N N			994	
	(	Culvert: N			ns): N		YEAR PA			J
ELEN		Oulvert: N		gle (To	ns): N					
No.	MENT COND	DITION STATE DATA  Description	Se ENV	gle (To emi (To Unit	ns): N	State 2				Total
<b>No.</b> *22	MENT COND	DITION STATE DATA  Description  Deck – Rigid Overlay	ENV Low	gle (To emi (To Unit	ns):	N	YEAR PA	INTED 1	994	<b>Total</b> 8422
<b>No.</b> *22 *92	Concrete I	DESCRIPTION STATE DATA  Description  Deck – Rigid Overlay  I Concrete Sidewalk	ENV Low Low	gle (To emi (To Unit SF LF	ns): N ns): N State 1	State 2 8422	YEAR PA	INTED 1	994	<b>Total</b> 8422 256
<b>No.</b> *22 *92 *107	Concrete I Reinforced Steel Oper	Description Deck – Rigid Overlay I Concrete Sidewalk of Girder – Coated	ENV Low Low Low	Unit SF LF	ns): N ns): N State 1 256 540	State 2 8422 72	YEAR PA State 3	INTED 1	994	Total 8422 256 836
*22 *92 *107 *210	Concrete I Reinforced Steel Oper	Description Deck - Rigid Overlay I Concrete Sidewalk Girder - Coated I Concrete Pier Wall	ENV Low Low Low	Unit SF LF LF LF	ns): Nns): Nns): Nns): Nns): Nns): Nns): Nns): Nns): Nns): Nns: Nns: Nns: Nns: Nns: Nns: Nns: Nns	State 2 8422 72 2	YEAR PA  State 3  208 5	INTED 1	994	Total 8422 256 836 136
No.  *22  *92  *107  *210  *215	Concrete I Reinforced Steel Oper Reinforced Reinforced	Description Description Deck - Rigid Overlay I Concrete Sidewalk In Girder - Coated I Concrete Pier Wall I Concrete Abutment	ENV Low Low Low Low Low	Unit SF LF LF LF LF	State 1  256 540 129 126	State 2 8422 72 2 12	YEAR PA State 3	INTED 1	994	Total 8422 256 836 136 140
*22 *92 *107 *210 *215 *234	Concrete I Reinforced Steel Oper Reinforced Reinforced Reinforced	Description Deck – Rigid Overlay I Concrete Sidewalk In Girder – Coated I Concrete Pier Wall I Concrete Abutment I Concrete Pier Cap	ENV Low Low Low Low Low Low Low	Unit SF LF LF LF LF LF	State 1  256 540 129 126 125	State 2 8422 72 2	YEAR PA  State 3  208 5	INTED 1	994	Total 8422 256 836 136 140 129
*22 *92 *107 *210 *215 *234 *286	Concrete I Reinforced Steel Oper Reinforced Reinforced Reinforced Slope – Ur	Description Deck – Rigid Overlay I Concrete Sidewalk Girder – Coated Concrete Pier Wall Concrete Abutment Concrete Pier Cap	ENV Low Low Low Low Low Low Low Low	Unit SF LF	State 1  256 540 129 126 125 2	State 2 8422 72 2 12	YEAR PA  State 3  208 5	INTED 1	994	Total 8422 256 836 136 140 129 2
*22 *92 *107 *210 *215 *234 *286 *295	Concrete I Reinforced Steel Oper Reinforced Reinforced Reinforced Slope – Ur	Description  Deck – Rigid Overlay  I Concrete Sidewalk  Girder – Coated  Concrete Pier Wall  Concrete Abutment  Concrete Pier Cap  Inprotected  Concrete Wingwalls	ENV Low Low Low Low Low Low Low	Unit SF LF	State 1  256 540 129 126 125 2 74	State 2  8422  72  2  12  4	YEAR PA  State 3  208 5	INTED 1	994	Total 8422 256 836 136 140 129 2 74
*22 *92 *107 *210 *215 *234 *286	Concrete I Reinforced Steel Oper Reinforced Reinforced Reinforced Slope – Ur	Description Deck – Rigid Overlay Concrete Sidewalk Girder – Coated Concrete Pier Wall Concrete Abutment Concrete Pier Cap Description Concrete Wingwalls Concrete Wingwalls Concrete Wingwalls	ENV Low Low Low Low Low Low Low Low Low	Unit SF LF	State 1  256 540 129 126 125 2	State 2 8422 72 2 12	YEAR PA  State 3  208 5	INTED 1	994	Total 8422 256 836 136 140 129 2
*22 *92 *107 *210 *215 *234 *286 *295 *302	Concrete I Reinforced Reinforced Reinforced Reinforced Reinforced Slope – Ur Reinforced Compress	Description Deck – Rigid Overlay Concrete Sidewalk Girder – Coated Concrete Pier Wall Concrete Abutment Concrete Pier Cap Description Concrete Wingwalls Concrete Wingwalls Concrete Wingwalls Concrete Bearing	ENV Low	Unit SF LF	State 1  256 540 129 126 125 2 74 106	State 2  8422  72  2  12  4	YEAR PA  State 3  208 5	INTED 1	994	Total  8422 256 836 136 140 129 2 74 112
*22 *92 *107 *210 *215 *234 *286 *295 *302 *311 *313 *334	Concrete I Reinforced Reinforced Reinforced Reinforced Reinforced Slope – Ur Reinforced Compress Moveable	Description Deck - Rigid Overlay I Concrete Sidewalk In Girder - Coated I Concrete Pier Wall I Concrete Abutment I Concrete Pier Cap Inprotected I Concrete Wingwalls I Concrete Wingwall	ENV Low	Unit SF LF LF LF LF LF LF LF LF LF EA LF LF EA	State 1  256 540 129 126 125 2 74 106 20	State 2  8422  72  2  12  4	YEAR PA  State 3  208 5	INTED 1 State 4	994	Total  8422 256 836 136 140 129 2 74 112 24
*22 *92 *107 *210 *215 *234 *286 *295 *302 *311 *313 *334 *357	Concrete I Reinforced Reinforced Reinforced Reinforced Reinforced Reinforced Slope – Ur Reinforced Compress Moveable Fixed Bear Metal Bridg	Description Deck - Rigid Overlay I Concrete Sidewalk Officer - Coated Concrete Pier Wall Concrete Abutment Concrete Pier Cap Officer - Cap Off	ENV Low	Unit SF LF LF LF LF EA LF EA LF EA	State 1  256 540 129 126 125 2 74 106 20 8	State 2  8422  72  2  12  4	YEAR PA  State 3  208  5  2	State 4	994	Total 8422 256 836 136 140 129 2 74 112 24 8 256 1
*22 *92 *107 *210 *215 *234 *286 *295 *302 *311 *313 *334 *357 *358	Concrete I Reinforced Reinforced Reinforced Reinforced Reinforced Reinforced Reinforced Slope – Ur Reinforced Compress Moveable Fixed Bear Metal Bridg Pack Rust Deck Crace	Description Deck – Rigid Overlay I Concrete Sidewalk Officer – Coated Concrete Pier Wall Concrete Abutment Concrete Pier Cap Officer – Cap Off	ENV Low	Unit SF LF LF LF LF EA LF EA LF EA EA	State 1  256 540 129 126 125 2 74 106 20	State 2  8422  72 2 12 4  6 4	YEAR PA  State 3  208  5  2	State 4	994	Total  8422 256 836 136 140 129 2 74 112 24 8 256 1
*22 *92 *107 *210 *215 *234 *286 *295 *302 *311 *313 *334 *357 *358 *359	Concrete I Reinforced Reinforced Reinforced Reinforced Reinforced Reinforced Reinforced Slope – Ur Reinforced Compress Moveable Fixed Bear Metal Bridg Pack Rust Deck Cract Soffit of Co	Description Deck - Rigid Overlay Concrete Sidewalk Girder - Coated Concrete Pier Wall Concrete Abutment Concrete Pier Cap Description Concrete Wingwalls Concrete Win	ENV Low	Unit SF LF LF LF LF EA LF EA EA EA EA	State 1  256 540 129 126 125 2 74 106 20 8	State 2  8422  72 2 12 4  6 4	YEAR PA  State 3  208  5  2	State 4	994	Total  8422 256 836 136 140 129 2 74 112 24 8 256 1 1
*22 *92 *107 *210 *215 *234 *286 *295 *302 *311 *313 *334 *357 *358 *359 *363	Concrete I Reinforced Reinforced Reinforced Reinforced Reinforced Reinforced Slope – Ur Reinforced Compress Moveable Fixed Bear Metal Bridg Pack Rust Deck Cract Soffit of Co	Description Deck - Rigid Overlay Concrete Sidewalk Girder - Coated Concrete Pier Wall Concrete Abutment Concrete Pier Cap Description Concrete Wingwalls Concrete Win	ENV Low	Unit SF LF LF LF LF EA LF EA EA EA EA EA	ns): N ns): N State 1 256 540 129 126 125 2 74 106 20 8	State 2  8422  72 2 12 4  6 4	YEAR PA  State 3  208 5 2	State 4	994	Total  8422 256 836 136 140 129 2 74 112 24 8 256 1 1 1
*22 *92 *107 *210 *215 *234 *286 *295 *302 *311 *313 *334 *357 *358 *359 *363 *701	Concrete I Reinforced Steel Oper Reinforced Reinforced Reinforced Slope – Ur Reinforced Compress Moveable Fixed Bear Metal Bridg Pack Rust Deck Cract Soffit of Co	Description Deck - Rigid Overlay Concrete Sidewalk Girder - Coated Concrete Pier Wall Concrete Abutment Concrete Pier Cap Description Concrete Wingwalls Concrete Win	ENV Low	Unit SF LF LF LF LF EA LF EA EA EA EA EA	State 1  256 540 129 126 125 2 74 106 20 8	State 2  8422  72  2  12  4  6  4  1  1	YEAR PA  State 3  208  5  2	State 4	994	Total  8422 256 836 136 140 129 2 74 112 24 8 256 1 1 1 2
*22 *92 *107 *210 *215 *234 *286 *295 *302 *311 *313 *334 *357 *358 *359 *363 *701 *702	Concrete I Reinforced Reinforced Reinforced Reinforced Reinforced Reinforced Reinforced Slope – Ur Reinforced Compress Moveable Fixed Bear Metal Bridg Pack Rust Deck Cract Soffit of Co	Description Description Deck - Rigid Overlay I Concrete Sidewalk In Girder - Coated I Concrete Pier Wall I Concrete Abutment I Concrete Pier Cap Inprotected I Concrete Wingwalls I Concrete Wingwalls I Concrete Wingwalls I Concrete Deck I Concrete Sidewalk I Concrete Deck I Concrete Sidewalk I Concrete Sidewalk I Concrete Deck I Concrete Sidewalk I Concrete Sidewalk I Concrete Sidewalk I Concrete Deck I Concrete Sidewalk I Concrete Sidewalk I Concrete Deck I Concrete Sidewalk I Concrete Deck I Concrete Sidewalk I Concrete Sidewalk I Concrete Deck I Concrete Sidewalk I Concrete Sid	ENV Low	Unit SF LF LF LF LF EA LF EA EA EA EA EA EA	ns): N ns): N State 1 256 540 129 126 125 2 74 106 20 8	State 2  8422  72 2 12 4  6 4	YEAR PA  State 3  208 5 2	1 State 4 16 1	994	Total  8422 256 836 136 140 129 2 74 112 24 8 256 1 1 1 2 1
*22 *92 *107 *210 *215 *234 *286 *295 *302 *311 *313 *334 *357 *358 *359 *363 *701 *702 *706	Concrete I Reinforced Steel Oper Reinforced Reinforced Reinforced Slope – Ur Reinforced Compress Moveable Fixed Bear Metal Bridg Pack Rust Deck Crac Soffit of Co Section Lo Utilities Drains Soffit of Ox	Description  Deck – Rigid Overlay  I Concrete Sidewalk  Girder – Coated  Concrete Pier Wall  Concrete Abutment  Concrete Pier Cap  Inprotected  Concrete Wingwalls  ion Joint Seal  Bearing  ring  ge Railing  king  poncrete Deck  ss	ENV Low	Unit SF LF LF LF LF EA LF EA EA EA EA EA	ns): N ns): N State 1 256 540 129 126 125 2 74 106 20 8	State 2  8422  72  2  12  4  6  4  1  1	YEAR PA  State 3  208 5 2	State 4	994	Total  8422 256 836 136 140 129 2 74 112 24 8 256 1 1 1 2
*22 *92 *107 *210 *215 *234 *286 *295 *302 *311 *313 *334 *357 *358 *359 *363 *701 *702 *706	Concrete I Reinforced Reinforced Reinforced Reinforced Reinforced Reinforced Reinforced Slope – Ur Reinforced Compress Moveable Fixed Bear Metal Bridg Pack Rust Deck Cract Soffit of Co	Description  Deck – Rigid Overlay  I Concrete Sidewalk  Girder – Coated  Concrete Pier Wall  Concrete Abutment  Concrete Pier Cap  Inprotected  Concrete Wingwalls  ion Joint Seal  Bearing  ring  ge Railing  king  poncrete Deck  ss	ENV Low	Unit SF LF LF LF LF EA LF EA EA EA EA EA EA	ns): N ns): N State 1 256 540 129 126 125 2 74 106 20 8	State 2  8422  72  2  12  4  6  4  1  1	YEAR PA  State 3  208 5 2	1 State 4 16 1	994	Total  8422 256 836 136 140 129 2 74 112 24 8 256 1 1 1 2 1
*22 *92 *107 *210 *215 *234 *286 *295 *302 *311 *313 *334 *357 *358 *359 *363 *701 *702 *706 *-Cha	Concrete Description Reinforced Reinforced Reinforced Reinforced Reinforced Reinforced Compress Moveable Fixed Bear Metal Bridge Pack Rust Deck Crac Soffit of Concrete Reinforced Reinforced Compress Moveable Fixed Bear Metal Bridge Pack Rust Deck Crac Soffit of Concrete Reinforced Rein	Description  Deck - Rigid Overlay I Concrete Sidewalk In Girder - Coated I Concrete Pier Wall I Concrete Abutment I Concrete Pier Cap Inprotected I Concrete Wingwalls I Concrete Wingwalls I Concrete Wingwalls I Concrete Deck	ENV Low	Unit SF LF LF LF LF EA LF EA EA EA EA EA EA	ns): N ns): N State 1 256 540 129 126 125 2 74 106 20 8	State 2  8422  72 2 12 4  6 4  1 1 1	YEAR PA  State 3  208 5 2  255	1 State 4 16 1	994  State 5	Total 8422 256 836 136 140 129 2 74 112 24 8 256 1 1 1 1 1
*22 *92 *107 *210 *215 *234 *286 *295 *302 *311 *313 *334 *357 *358 *359 *363 *701 *702 *706 *-Cha	Concrete I Reinforced Steel Oper Reinforced Reinforced Reinforced Slope – Ur Reinforced Compress Moveable Fixed Bear Metal Bridg Pack Rust Deck Crac Soffit of Co Section Lo Utilities Drains Soffit of Ox	Description  Deck – Rigid Overlay  I Concrete Sidewalk  Girder – Coated  Concrete Pier Wall  Concrete Abutment  Concrete Pier Cap  Inprotected  Concrete Wingwalls  ion Joint Seal  Bearing  ring  ge Railing  king  poncrete Deck  ss	ENV Low	Unit SF LF LF LF LF LF EA LF EA EA EA EA EA	ns): N ns): N State 1 256 540 129 126 125 2 74 106 20 8	State 2  8422  72  2  12  4  6  4  1  1	YEAR PA  State 3  208 5 2  255  1	1 State 4 16 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	994	Total  8422 256 836 136 140 129 2 74 112 24 8 256 1 1 1 1 1 2 1

County/City: CITY OF DANVILLE Feature Intersected: FALL CREEK

Main Route: 58 BUSINESS Facility Carried: RIVER STREET

Location: 0.60 MAIN STREET; 8.60 HALIFAX COUNTY

Lead Inspector: J.B. HANSEN

Additional Inspectors: B.A. MOSEBROOK, SET

DESCRIPTION	Thron Continuous Stool Multi Doom Chang with Congrete Dools 45	20' 2" total langth
DESCRIPTION	Three Continuous Steel Multi-Beam Spans with Concrete Deck, 12	28 - 3 total length.
ORIENTATION	Abutment A on left looking downstream. Spans numbered 1-3 and	Piers 1-2 numbered
	from Abutment A. Beams 1-8 numbered left to right facing Abutme	
MISCELLANEOUS	★ - Denotes changes since last inspection.	Bridge Coordinates
(Items which are structure specific and cannot be included in another section.)		N 36° 35' 12.36"
carriot be included in another section.)		W 79° 22' 44.80"
	Weather at time of inspection: Partly Cloudy, 38° F	
SPECIAL REQUIREMENTS	Snooper and traffic control used to access fatigue prone details.	
(Special Equipment needed or	<b>333</b>	
Special Inspections required such		
as: Fracture Critical, Underwater, Fatigue Prone, Scour Critical,		
Moveable Bridge, Segmental		
Concrete, Pin and Hanger, etc.)	None	
WORK DONE	None	
STRUCTURAL ANALYSIS	2016 BrR 6.5 LRFR Rating (Controlling member: Beam 2)	
	Type 3 – 53 tons	
	Type 3S2 – 62 tons	
	See attached load rating coversheet.	
OVERALL CONDITION	SATISFACTORY.	
	-Wearing Surface has cracks, scale & aggregate polish.	
	-Expansion Dam at Abutment B has spalled concrete.	
	-Bottom of deck and overhang has delaminated and spalled concre	ete.
	-Median and sidewalk has stripped waterproofingSidewalk has cracks.	
	-Railing has peeling paint, corrosion, corroded bolts and impact da	umage
	-Drains are clogged	image.
	-Waterline in Bay 1 has corrosion and is bowed.	
	-Waterline support at Pier 1 has corrosion with section loss and sa	qs.
	-Expansion joints filled with debris and leaks.	
	-Bearing devices have corrosion, missing anchor bolts/nuts, and g	
	-Paint system failure on exterior beam fascias, diaphragms, beam	bearing areas and
	bearing assemblies.	
	-Beams 1 and 8 have corrosion and pack rust at splice plates.	1-
	-Substructure has cracks, scale, delamination, and spalled concre	
	<ul><li>-Approach pavement has cracks, is breaking up and has potholes.</li><li>-Approach guardrail has impact damage.</li></ul>	
	-Approach guardian has impact damage.	
RECOMMENDATIONS	-Repair bearing assemblies that have gaps between bearing device	e and beam.
	-Replace leaking expansion joints.	
	-Replace failed waterline support in Bay 1 at Pier 1.	
	RECOMMENDATIONS continues on next pa	age.

Date of Inspection: Agency ID: 1081901-000000000020204 01/20/2016

#### **RECOMMENDATIONS** (CONT'D.)

- -Clean, prepare and paint structural steel and railing.
- -Repave approach pavement.
- -Repair spalled expansion dam at Abutment B.
- -Repair delaminated/spalled concrete in bottom of deck, overhang, and substructure.
- -Replace corroded and damaged rail posts and corroded railing bolts.
- -Replace missing anchor bolts/nuts in bearing devices.
- -Replace damaged approach guardrail.
- -Clean clogged deck drains.

#### **DECK**

#### **Condition Rating: 6**

#### **Wearing Surface**

Latex concrete overlay.

Wearing surface has hairline diagonal and transverse cracks as follows:

	<b>Lane</b>	Span 1 (LF)	Span 2 (LF)	Span 3 (LF)
EBL	sealed	55	100	75
CDL	unsealed	10	20	10
	sealed	40	170	100
WBL			See Photo #7	
	unsealed	5	25	25

- ★Wearing Surface has light scale with aggregate polishing over 30% of entire surface. See Photo #8.
- ★Expansion dam at Abutment B, right lane of EBL has 1 SF spalled concrete 1" deep. See Photo #8.
- ★Expansion dam at Abutment B has D-spalls 1" wide X 1" deep totaling 2 LF.

Top of Deck

Not Visible.

#### **Bottom of Deck**

Bottom of deck has areas of delaminated/spalled concrete in isolated locations (up to ½" deep) as follows: Span 1 – 3 SF; Span 2 – 4 SF; Span 3 - 6 SF

#### Overhang

★Overhang has delaminated/spalled concrete (up to 1" deep) as follows: Upstream side – 7 SF; Downstream side – 9 SF

#### **Median**

Waterproofing worn off of median for 40% of surface area.

## **Sidewalks**

Waterproofing worn off of sidewalk for 40% of surface area.

Sidewalk on downstream side of structure has 6 transverse hairline cracks. Sidewalk on upstream side has 4 transverse hairline cracks.

Underside of sidewalk on both sides of structure has 7 transverse cracks (up to 1/16" wide) and are exhibiting efflorescence.

**Railing** | Railing has peeling paint throughout. **See Photo #9.** 

#### Railing (Cont'd.)

Several railing connection bolts at cantilevered connections on both sides of structure have severe corrosion and up to 30% section loss.

- ★Railing post at Abutment B is twisted 3/4" x full height with one flange bent 3/4" x 9".
- ★4<sup>th</sup> Railing post from Abutment A has previous corrosion with 75% section loss on lower 4" with a 2" X 4" corrosion hole at connection to bracket support. **See Photo #10.**

#### **Drains**

★Two (2) scuppers on the upstream side are clogged.

#### **Utilities**

Waterline bowed up 1' above support located 10' from Abutment A in Bay 1. See Photo #11

Waterline at Abutment A encroachment has heavy corrosion and 1/8" pitting on bottom. **See Photo #12.** 

Waterline support in Bay 1 of Span 2 at Pier 1 is failing (sagging) due to severe section loss in web of channel. Large corrosion holes are present.

#### **Expansion Joints**

Expansion joints are partially filled with dirt and debris.

★Expansion joint material is leaking at Abutment A EBL for 3 LF and Abutment B EBL for 3 LF. **See Photo #8.** 

#### **SUPERSTRUCTURE**

#### **Condition Rating: 6**

#### **Bearings Devices**

Masonry plates have up to 1/4" deep pitting due to previous corrosion.

Bearing devices at abutments and piers have light to medium rust.

Bearing devices for Beams 2 and 3 at Abutment A each have one missing anchor bolt.

Bearing device for Beam 7 at Abutment A is missing 4 anchor bolt nuts.

Bearing device for Beam 2 at Pier 2 has a 1/4" gap between rocker bearing and masonry plate.

Bearing devices for Beams 1-3 at Abutment B have up to 1/16" gap between rocker bearing and masonry plate.

#### **BEAMS**

#### **FATIGUE PRONE DETAILS**

**NOTE:** Hands on inspection of Fatigue Prone Details performed this inspection. Condition of Fatigue Prone Details considered in the general condition rating of Superstructure. See sketch for details.

All riveted connections - Category D. *No deficiencies found.* 

Utility support fillet weld to web of beam – Category E. *No deficiencies found.* 

Utility support flange to flange fillet weld – Category C'

<b>Agency ID:</b> 1081901-000	0000000020204 Date of Inspection: 01/20/2016
<u>General</u>	No deficiencies found.  ★Beams 1 and 8 have light rust along flanges and web throughout lengths.
	★Beams 1 and 8 have up to 1/4" pitting in web 4" high x 1" wide adjacent to sidewalk support brackets at numerous locations throughout lengths.
	★Beam 1 splice, 1 <sup>st</sup> from Pier 1, has up to 3/8" pack rust between plate and bottom flange.
	★Beam 8 splice, 2 <sup>nd</sup> from Pier 1, has up to 1/2" pack rust between plate and bottom flange. <b>See Photo #13.</b>
	Sidewalk channel beams on upstream and downstream side of structure in Spans 1-3 have heavy rust scale on top flange, which has lifted sidewalk up to 3/8" at random locations.
	★ Sidewalk channel beams on upstream and downstream side have 1/8" deep pitting adjacent to railing posts pitting up to full height of web x ½" wide due to previous corrosion.
<u>Diaphragms</u>	No deficiencies found.
PAINT	Light to medium rust on isolated areas of structural steel at abutments and piers.
	★Beams have isolated areas of peeling paint totaling approximately 5% of area.
SUBSTRUCTURE	Condition Rating: 6
ABUTMENTS <u>Wings</u>	★Wingwall on downstream side of Abutment B has a hairline vertical crack 6 LF long.
<u>Backwalls</u>	Backwall at Abutment A has 6 full-height vertical cracks (up to 1/16" wide). Backwall at Abutment B has 5 full-height vertical cracks (up to 1/16" wide).
	Top of backwall at Abutment A has 22 cracks (up to 1/16" wide). Top of backwall at Abutment B has 31 cracks (up to 1/16" wide).
	Waterline encroachment in Abutment A backwall in Bay 1 has heavy moisture seepage onto breastwall.
	Backwall at Abutment B in Bay 6 has 2 S.F. of spalled/delaminated concrete (up to ¾" deep) with exposed reinforcing steel and 60% section loss in rebar.
Bearing Seats	No deficiencies found.
<u>Breastwall</u>	Breastwall at Abutment A has 2 full height vertical cracks up to 1/16" wide.
	Breastwall at Abutment B has 3 full height vertical cracks up to 1/16" wide with efflorescence.
	★Breastwall at Abutment B, Bay 7, has 2 SF of delaminated concrete.

**Agency ID:** Date of Inspection: 1081901-000000000020204 01/20/2016 Weep Holes Weep holes at both abutments filled with dirt and debris. **Footings** Not Visible. Undermining No deficiencies found. **Settlement** No deficiencies found. **PIERS** Cap at each pier has one full height hairline vertical crack. <u>Caps</u> ★Cap at Pier 1, upstream end, Span 2 side has 4 SF of delaminated/spalled concrete (1/2" deep). Cap at Pier 2 has heavily scaled concrete on upstream end. Walls Wall at each pier has one full height hairline vertical crack. ★Pier walls have light scale along lower 3'. Wall at Pier 1, upstream end has 4 SF of delaminated/spalled concrete (2" deep) with exposed reinforcement (20% section loss). See Photo #14 Wall at Pier 2 has heavily scaled concrete and 1 SF of delaminated/spalled concrete (1"

deep) with exposed reinforcement (20% section loss) on upstream end and 2 SF on downstream end.

Footings No deficiencies found.

<u>Undermining</u> No deficiencies found.

**Settlement** No deficiencies found.

CHANNEL AND SLOPE Condition Rating: 7
PROTECTION

Channel | Channel Profile checked this inspection and no significant change found since

01/27/2010. See attached channel profile sketch.

**Scour** No deficiencies found.

**Embankment Erosion** No deficiencies found.

<b>Agency ID:</b> 1081901-00	0000000020204
<u>Drift</u>	No deficiencies found.
<u>Vegetation</u>	No deficiencies found.
Adequacy of Opening	Sufficient
FIELD DOCTING	
FIELD POSTING <u>Actual Posting</u>	Not posted.
<u>Legibility</u>	N/A
<u>Visibility</u>	N/A
Advanced Warning Signs (In accordance with Traffic Engineering Division Memorandum TE-244 dated 5-7-94)	N/A
OTHER APPROACH PAVEMENT	Approach pavement at Abutment A is cracked 1/4" wide and breaking up for 20 SF adjacent to backwall with 4 SF of potholes (2" deep). <b>See Photo #15.</b>
	★Approach pavement at Abutment B is cracked 1/4" wide and breaking up for 30 SF
	★Approach median is 3" low at Abutment B.
TRAFFIC SAFETY FEATURES Bridge Railing	Substandard.
Transitions	Substandard.
Approach Guardrail	Substandard.
	★Approach guardrail on upstream side of Abutment A has 20 LF of impact damage.
Approach Guardrail <u>Terminal</u>	Substandard.
OBJECT MARKERS	Object markers (Type 3) in place at Abutment A (WBL) run-on end of structure on upstream side.



PHOTO #1
Approach elevation looking from Abutment A to Abutment B.



PHOTO #2
Approach elevation looking from Abutment B to Abutment A.



PHOTO #3
Side elevation looking upstream.



PHOTO #4
Side elevation looking downstream.



PHOTO #5 General view of pier.



PHOTO #6
General view of abutment.



PHOTO #7
Sealed cracks in wearing surface, westbound lane, Span 2. Note scale.



PHOTO #8
Spalled concrete in expansion dam and leaking expansion joint at Abutment B.



PHOTO #9
Peeling paint on railing.



PHOTO #10

Corrosion on 4<sup>th</sup> railing post from Abutment A.



PHOTO #11
Waterline is bowed above support, Bay 1.



PHOTO #12
Corrosion and pitting in waterline, Abutment A.



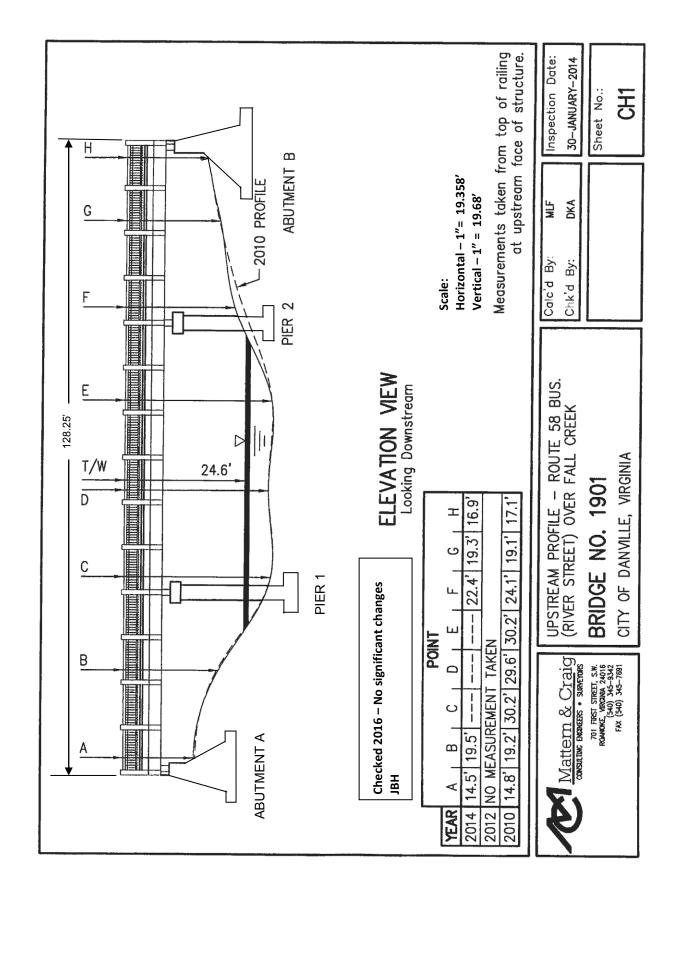
PHOTO #13
Pack Rust on Beam 8 splice.

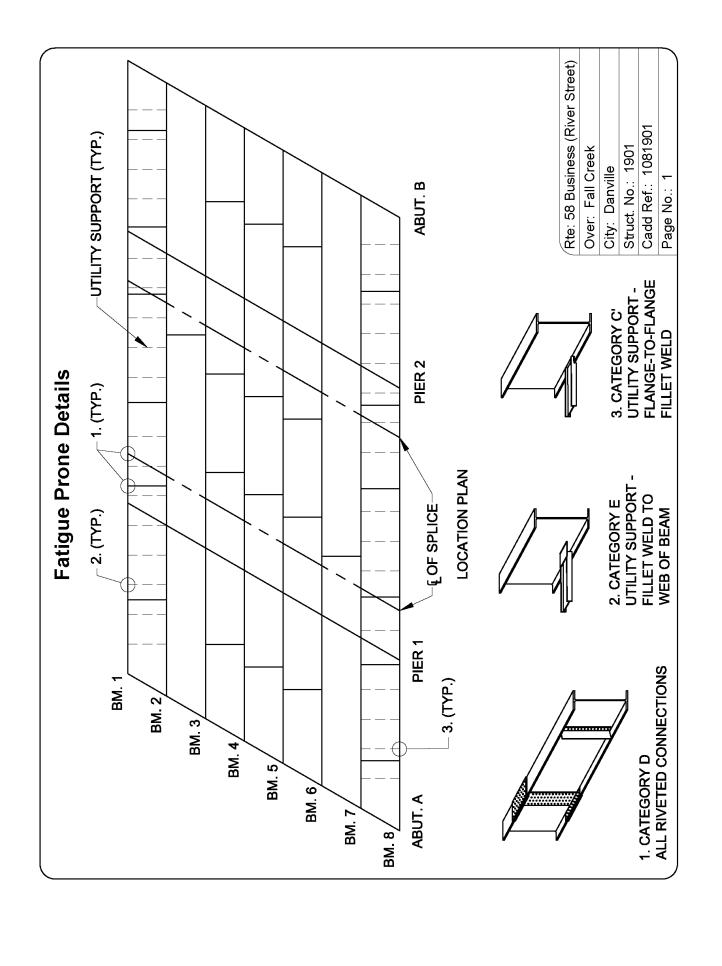


PHOTO #14
Spalled concrete on Pier 1 wall, upstream end.



PHOTO #15
Approach pavement at Abutment A is cracked, breaking up and has potholes.







## Structure and Bridge

LOAD RATING SUMMARY FORM FOR STRUCTURES

Rte.: 58 (River Street)

Over: Fall Creek

VA Structure No.: 1901

FED. ID: 000000000020204

City: Danville

District: Lynchburg

Rated By: PLJ Date: 2/16/16

Checked By: APS Date: 2/16/16

VDOT Reviewer: \_\_\_\_\_

ADAM PAUL SUMMERS
Lic. No. 0402050909

Adam Summers

2016.02.16 15:52:44 -05'00'

CALCULATION TOOLS AND METHOD USED: Bridge Rating 6.5 (LRFR)

BASIS FOR RATING:

Briolo I Oliviti	110.				
	GVW (TONS)	RATING	CONTROLLING MEMBERS	CONTROLLING LOCATION	CONTROLLING FORCE
DESIGN LOAD		FACTOR			
HL-93 (INV)	N/A	1.044	Beam 2	Pier 1	Flexure
HL-93 (OPR)	N/A	1.353	Beam 2	Pier 1	Flexure
		TONS			
HS-20 (INV)	36	48	Beam 2	Mid Span 2	Flexure
HS-20 (OPR)	36	62	Beam 2	Mid Span 2	Flexure
LEGAL LOADS		TONS			
VA Type 3	27	53	Beam 2	Mid Span 2	Flexure
VA Type 3S2	40	62	Beam 2	Pier 2	Flexure
*LANE	40	81	Beam 2	Pier 1	Flexure
PERMIT LOAD		TONS			
BP-90	45	77	Beam 2	Pier 2	Flexure
BP-115	57.5	84	Beam 2	Pier 1	Flexure
SH VEHICLES		TONS		W.	
NRL:	40	49	Beam 2	Mid Span 2	Flexure
SU4:	27	44	Beam 2	Mid Span 2	Flexure
SU5:	31	47	Beam 2	Mid Span 2	Flexure
SU6:	34.75	47	Beam 2	Mid Span 2	Flexure
SU7:	38.75	49	Beam 2	Mid Span 2	Flexure

<sup>\*</sup>Not applicable for single spans less than and equal to 200 feet.

Schwartz & Associates, Inc.

Agency ID. Maint. Resp.

Bridge Key: 000000000020204

SD/FO : ND SR: 75.80

0000000000020204 0.07 0/4 Hall fox Rd/0,32 60 Main /8.60 Hall count : 2 U.S. Numbered Hwy : Not Applicable (P) Danville Danville : 00058 . 9.87 -5 Rte. Signing Prefix (5B) % Responsibility (98B) Border Br. Code (98A) Route Number (5D) County Code (3) Place Code (4) Mile Post (11) Struc Num (8) Location (9) Identification : Route On Structure : 79° 22' 44.80" 36° 35' 12.36" : 0 N/A (NBI) : River Street . 1 Mainline : 51 Virginia : Fall Creek : Lynchburg Feature Intersected (6) Directional Suffix (5E) Level of Service (5C) Facility Carried (7) Record Type (5A) Longitude (17) Latitude (16) District (2) State (1)

	Structure Typ	Structure Type and Materials	
No. Spans Main Unit (45)	€	No. Appr. Spans (46)	0
Main Span Material (43A)	: 4 Steel Continuous	Appr. Span Material (44A)	: 0 Other
Main Span Design (43B)	2 Stringer/Girder	Appr. Span Design (44B)	: 00 Other (NBI)
Deck Type (107)	: 1 Concrete-Cast-in-Place	Wearing Surface (108A)	: 3 Latex Concrete/Similar
Membrane (108B)	: O None	Deck protection (108C)	: O None

Year Built (27)       : 1948       Year Reconstr. (105)       : -1         Type of Service On (42A)       : 5 Highway-pedestrian       : -1         Type of Service Under (42B)       : 6 Waterway       Lanes Under (28B)       : 0         Lanes On (28A)       : 4       Lanes Under (28B)       : 0         Detour Length (19)       : 1.86       Year of ADT (30)       : 2012       2014         % Truck ADT (109)       : 6 7       7       7       7		Agea	Age and service	
(42A) : 5 Highway-pedestrian der (42B) : 5 Waterway	Year Built (27)	1948	Year Reconstr. (106)	7
der (42B) : 5 Waterway : 4 Lanes Under (28B) :: 1.86 : 18,000 Year of ADT (30) :: 6 7	Type of Service On (42A)	: 5 Highway-pedestrian		
: 1.86 : 18,000 Year of ADT (30)	Type of Service Under (42B)	: 5 Waterway		
: 18,000 Year of ADT (30)	anes On (28A)	. 4	Lanes Under (28B)	0
: 18,000 Year of ADT (30)	etour Length (19)	1.86		
10	DT (29)	18,000	Year of ADT (30)	2012 2014
	Truck ADT (109)	1 9		

	Geo	Geometric Data	
Length Max Span (48)	. 55.00	Structure Length (49)	128.25
Curb/Sdwlk Width Left (50A)	: 4.27	Curb/Sidewalk Width Right (50B)	08) : 4.17
Width Curb to Curb (51)	54.00	Width Out to Out (52)	. 65.67
Appr. Roadway Width (32)	54.00	Median (33)	: 2 Closed Med w/o Barris
Skew (34)	30.00°	Structure Flared (35)	: 0 No flare
Horizontal Clearance (47)	: 54.00	Deck Area:	8,479.81
Vertical Clearance (10)	66.66		01100
Minimum Vertical Clearance Over Bridge (53)	ver Bridge (53)	66.96	017710
Minimum Vertical Underclearance Reference (54A)	nce Reference (54A)	: N Feature not hwy or RR	œ
Minimum Vertical Underclearance (54B)	ice (54B)	0.00	
Minimum Lateral Underclearance Reference Right (55A)	ce Reference Right (55A)	: N Feature not hwy or RR	œ
Minimum Lateral Underclearance Right (55B)	ce Right (55B)	0.00	
Minimum Lateral Underclearance Left (56)	ce Left (56)	00:0	

		Inspection	uo	
Bryant AVE.		FREQ (91)	LAST INSP. (90)	NEXT INSP.
Regular Inspection	Sear	24	-04/30/2014	<b>6113072016</b>
	REQ'D (92)	FREQ (92)	LAST INSP. (93)	NEXT INSP.
Fracture Critical	Z	7	01-70-16	81-00-10
Underwater Insp.	Z	٦		5
Other Special Insp	z	5		

		Classification	ication	
Toll Facility (20)	3 On free road	se road	Fed. Maint. Resp. (21)	: 04 City/Municipal Hwy Agenc
Functional Class (26)	: 14 Urbs	: 14 Urban Other Princ	Owner (22)	: 04 City/Municipal Hwy Agenc
Historical Significance (37)	: 5 Not e	5 Not eligible for NRHP	Defense Highway (100)	: 0 Not a STRAHNET hwy
Parallel Structure (101)	: No    br	. No    bridge exists	Direction of Traffic (102)	: 22-way traffic
Temporary Structure (103)	: Not App	. Not Applicable (P)	Highway System (104)	: 1 On the NHS
Nat. Truck Network (110)	: 1 Part o	. 1 Part of nati network	NBIS Length (112)	: Long Enough
National Base Net (12)		LRS Inv Rte (13a)	0000000000	Sub# (13) : 00

			Load Rating and Posting	id Posting		
Design Load (31)	57/	4 H 20		Posting Status (41)		. A Open, no restriction
Oper. Rtg. Method (63) : 11F Load Factor		1-LF Load Factor	60	Oper. Rtg. (64)	525 C2	20
Inv. Rtg. Method (65)	1.0	1-LF Load Factor	W	Inv. Rtg. (66)	377 48	90
Posting (70)	1.5	5 At/Above Legal Loads	pads			

Substructure (60) : 6 Satisfactory V

Superstructure (59): 6 Satisfactory

Deck (58) : 6 Satisfactory

		Appraisal	
Bridge Rail (36A)	: 0 Substandard	Str Evaluation (67)	9
Transition (36B)	: 0 Substandard	Deck Geometry (68)	4 Tolerable
Appr. Rail (36C)	: 0 Substandard	Undercir., Vert. and Horiz. (69)	: N Not applicable (NBI)
Appr. Rail Ends (36D)	: 0 Substandard	Waterway Adequacy (71)	7 Above Minimum
Scour Critical (113)	: 5 Stable w/in footing	Approach Alignment (72)	5 Above Tolerable

		Proposed Improvements	ents			
Type of Work (75)	: Not Applicable (P)	Improv. Length (76)	00:00	Future ADT (114)	0.0	19,500
Bridge Cost (94)	\$0.00	Year of Estimate (97)	2014	Yr. of Fut. ADT (115)		2035
Roadway Cost (95)	ů,	Total Cost (96)	\$0.00			
		Navigation Data				

	Na	Navigation Data		
Navigation Control 38	: Permit Not Required	Horizontal Clearance 40	0.00	
Vertical Clearance 39	0.00	Lift Bridge Vertical Clearance 116	530	
Pier Protection 111	: Not Applicable (P)			

Bridge Key: 000000000020204

: M No Maintenance Reqd

Posting Required (S55) Posted Status (S50)

Posted Date (S51)

110000

Foot Bridge Posting (S169)

Construction and Maintenance Project Status Code (S189)

49 53

Rated Capacity (Single) (S45) Rated Capacity (Semi) (S46)

	Bridge Inventory
108	
••	
Resp.	
C .	

		Bridge Inventory			
VA Str. Number (S4)	1901	Special Codes (S12)	۵.	Design Load High (S44)	. 4 H 20
Residency Code (S1)	: Halifax - 18	Special Structure Code(S173)	29.8	Stress Level (S47)	W Min-Range
Jurisdiction Code (S2)	: Danville - 108	Sketch Page Number (S172)		Stress Analysis Meth (S48)	M Fod L F State WG
Adj. Juris. Code(S10)	24	Original Plan Number (S13a)	: 089-20	Computer File Name (S49a)	
Map Location (S195)	VV.	Original Std. Plan Number (S13b)		Last Run Date (S49b)	
Alt.Location (S193)	199	Recon. Plan Number (S14a)			2/16/20/6
Parallel Structure (S192)	2.00	Recon. Stand. Plan No (S14b)	Q Lett		
Repl. Structure(S38)	: N Does not Replace	. N Does not Replace Railroad Mile Post (S191)	u s		Constructio

			Hydraulics		
Soour Critical Ind (S30)	88	N No Study Required	Tidal Indicator (S42)	330	
Scour Critical Remark (S31)	* *		Number Drain Openings (S22)	0	
Height of Opening (S24)	00	0	Drainage Area (S194)	K)K	
Drain Barrel Length (S25)	* (1)	0	Drain Width (S23)	0	
Drain Depth of Fill (\$26)	100	0			

Appurtenances (

	>	>	z	
	Water	Gas	Electric	
_	z	z	z	
S64)	Scaffold	Rigging	Platform Truck	
nent (	z	z	z	
5		***		
Special Equipment (S64	ManLift	<b>Bucket Truck</b>	Porttoon	
	>	>	z	
	100	100	* *	
	Ladder	Snooper	Boat	
			_	

N Lighting N Fiber Optic					Utilitie	s (	es (S190)			
Y Cable : N Fiber Optic	z	Water	9.5	>	Sewer		z	Lighting		Z
NOther	z	Gas	$[\pi][\pi]$	>	Cable		z	Fiber Optic	14.4	>
	z	Electric	*(*)	z	Phone	5.0	z	Other		z

: N Not Applicable : Danville - 108

Maint. Resp. - State (S15)

1994 ۷..

Year Last Painted (S94)

Paint System (S186)

Type Reconstruction (S40)

Year Reconstructed (S27) Type Construction (S39)

Project UPC Code (S58) HBRRP Indicator (S41)

. N - Bridge

		Substructure	Substructure Layout (S19, S20, S21)			
Abutment A	Material	Design Type	Abutment B	Material	Design Type	Inspection Key
Material and Type	1 Concrete	04 Curtain Wall	Material and Type	1 Concrete	04 Curtain Wall	Posted Capacity Std. (S
Fnd/Piles Mat/Type	3 Firm Material	01 Spread Footing	Fnd/Piles Mat/Type	3 Firm Material	01 Spread Footing	Posted Capacity Single
Main Pier - Group 1; Count : 2	2		Appr. Pier - Group 1; Count	0		Posted Capacity Semi (8
Material and Type	1 Concrete	01 Solid	Material and Type			Posting Sign Leg. (S170
Fnd/Piles Mat/Type	1 Solid Rock	01 Spread Footing	Fnd/Piles Mat/Type			Posting Sign Vis. (S171
Main Pier - Group 2; Count : 0	0		Appr. Pier - Group 2; Count ::	0		
Material and Type			Material and Type			Critical Features Class (
Fnd/Piles Mat/Type			Fnd/Piles Mat/Type			Maint, Repair Cost (\$10
Main Pier - Group 3; Count :	0		Appr. Pier - Group 3; Count ::	0		Maintenance Fund Code
Material and Type			Material and Type			
Fnd/Piles Mat/Type			Fnd/Piles Mat/Type			Critical R
Main Pier - Group 4; Count : 0	0		Appr. Pier - Group 4; Count	0		Outstanding Critical Rec
Material and Type			Material and Type			Prev. Comp. Critical Rec
Fnd/Piles Mat/Type			Fnd/Piles Mat/Type			Clearan
Main Pier - Group 5; Count : 0	0		Appr. Pier - Group 5; Count			Roadway Width - Single
Material and Type :			Material and Type			Roadway Width - Right (
Fnd/Piles Mat/Type			Fnd/Piles Mat/Type			Median Width (S35)

Inspection		
Inspection Key	: EVOS	
Posted Capacity Std. (S52)	100	
Posted Capacity Single (S53)	* *	
Posted Capacity Semi (S54)		
Posting Sign Leg. (S170)	<b>*</b> (*)	
Posting Sign Vis. (S171)	**	
Critical Features Class (S62)	80	
Maint. Repair Cost (\$1000) (\$56)	0 9	
Maintenance Fund Code (S57)	: U Urban	
Critical Recommendations	dations	
Outstanding Critical Recommendation (S176)	on (S176)	* 4
Prev. Comp. Critical Recommendation (S179)	on (S179)	

Roadway Width - Right (S34) :: 2 Median Width (S35) :: 4	20.00	Roadway Width - Single/Left (S33)
***	26.00	toadway Width - Right (S34)
	4.00	fedian Width (S35)

		Roadway	У		
VA Highway System Code (S185)	: Primary	HTRIS Route Number (S8)	(4.9)	RNS Location	
On_Under Code: (F5A)	•	HTRIS Node Number (S7)	0	Latitude	36.5867666667
Lane of Route (S5)	**	HTRIS Node Offset (S9)	0.00	Longitude	-79.3791111111